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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/444,869

11/22/1999

HIROKAZU ICHIKAWA

046601-5029

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07/30/2004

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EXAMINER

LEE, CHEUKFAN

ART UNIT

PAPER NUMBER

2622

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/444,869

Applicant(s)

ICHIKAWA ET AL.

Examiner

Cheukfan Lee

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-14 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4,9,14 and 16-18 is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7,10 and 13 is/are rejected.
- 7) ☒ Claim(s) 8, 11 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 November 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2622

1. Claims 1, 3-14 and 16-18 are pending. Claims 1, 4, 5, 7, 9, 10, 13, 14, and 18 are independent.

2. Applicant's arguments with respect to claims 1, 3, 5-7, and 13 have been considered but are moot in view of the new ground(s) of rejection.

3. The indicated allowability of claim 10 is withdrawn. Upon a second review, the Hiramatsu et al. (U.S. Patent No. 4,974,068) contains the limitation of claim 10 with regard to "infrared cutoff filter" and "visible light cutoff filter". Rejection follows.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramatsu et al. (U.S. Patent No. 4,974,068) and Lee (U.S. Patent No. 6,233,065).

Regarding claims 1 and 13, Hiramatsu et al. discloses an image reading device that irradiates an object (film) with a light and reads transmitted light from the object (film). The device comprises a single light source (lamp 1) which emits a visible light (red, green and blue lights R, G and B) and an invisible light (IR), a reading unit that

reads the transmitted light from the object (film), a controller selectively controls to insert one of the visible light filters (35c, 35d, 35e) and IR filter (1-1) (col. 3, line 13 - col. 4, line 66, col. 5, line 1 - col. 7, line 65). The filters are mounted on filter exchange mechanism (4). In a mode when the IR filter is selected and inserted into optical path, the image sensor reads the IR light transmitted from the object and through the IR filter for dust detection. In a mode when the R, G or B filter is selectively inserted into the optical path, the image sensor reads visible light transmitted through the original object (note Fig. 6, col. 4, lines 46-58).

Hiramatsu et al. differs from the invention in that the light being read by the image reading unit is light transmitted from the object (film) and not light reflected from the object.

Lee teaches using a single light source (13) for illuminating a transparency original and a reflective type original in a scanner (Fig. 5). The optical path from the document to the linear image sensor (charge-coupled device 32) is common for both the transparency original and the reflective type original. That means the light source (13) and the image sensor (32) are commonly used for both types of originals.

As shown in Fig. 5 of Lee, the light source (13) and the scanning carriage (3) carrying linear image sensor (CCD 32) are arranged at opposite sides of the original (4) being scanned. Such arrangement is for a transparency scanner. But by including other elements (81, 82, etc.), the scanner is provided with a function of scanning also a reflective original, in addition to the function of scanning a transparency (Fig. 5, col. 5, line 58 – col. 6, line 23).

Though Lee's scanner structure is not the same as that of the scanner of Hiramatsu et al., a linear CCD sensor is employed in both scanners, and relative movement between original and the linear CCD is created in the subscanning direction in both scanners.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Hiramatsu et al. and Lee such that a single light source is employed for both transparency original scanning and reflective type original scanner in order to provide an image reading device for reading a both transparency originals and reflective type originals.

Regarding claim 3, it is inherent that the IR light has at least one emission peak. As to the range within which the peak occurs, Hiramatsu et al. does not disclose a specific range as claimed, which is between 800 nm to 1000 nm. However, it would have been an obvious design choice of wavelength range for the peak to occur within depending on the type of light source being employed.

Regarding claim 10, see discussion for claims 1 and 13 above. Further, with regard to the claimed "infrared cutoff filter" and "visible light cutoff filter", the filters (35c, 35d, 35e of R, G and B, respectively) of Hiramatsu et al. inherently cut infrared lights, and the IR filter (35f) has the visible light cut characteristic (col. 4, lines 46-58). Thus, the filters correspond to the claimed filters. As to the positions of the filter, the filters of Hiramatsu et al. are not positioned between the object or original and the reading unit (CCD) as claimed but before the object or original (Figs. 3 and 6, col. 4, lines 46-58). However, positioning the filter(s) between the object or original and the reading unit

would have been a design choice since the filters are still within the path between the light source and the reading unit and the filtered light after the object or original is detected by the reading means.

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramatsu et al. (U.S. Patent No. 4,974,068) and Lee (U.S. Patent No. 6,233,065) in view of Matsumoto et al. (U.S. Patent No. 5,514,934).

Claim 5 recites limitations similar to those of claim 1 (please refer to discussion for claim 1), except that claim 5 claims a rare gas fluorescent lamp. The obvious image reading device of Hiramatsu et al. and Lee was discussed for claim 1 above. Hiramatsu et al. does not disclose the type of lamp (1) as a rare gas fluorescent lamp. However, such lamp for high light-output level and stable discharge is taught by Matsumoto et al. (Figs. 1 and 2, col. 5, line 45 - col. 7, line 5 and lines 28-47). The rare gas fluorescent lamp is used in a fax machine or copier which has an image reading device (col. 6, lines 2-5, col. 1, lines 18-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a rare gas fluorescent lamp as the lamp of Hiramatsu et al., and Lee as taught by Matsumoto et al., for a high level light output and stable discharge.

Regarding claim 6, see discussion of xenon as the rare gas (col. 5, lines 49-67).

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramatsu et al. (U.S. Patent No. 4,974,068) and Lee (U.S. Patent No. 6,233,065) in view of Taguchi (Japanese Patent No. 407272672A or 07-272672). See English translation by machine, a copy of which was attached to the letter of the previous Office action.

Claim 7 recites limitations similar to those of claim 1, except that claim 7 claims that the fluorescent lamp comprises a sealed container inside which a phosphor brought into emission by a discharge is disposed, a pair of internal electrodes disposed inside the sealed container, and a pair of external electrodes disposed outside thereof. Hiramatsu et al. discussed for claim 1 above does not disclose the type of lamp (1) as claimed, but a fluorescent lamp, which is inherently capable of irradiating a visible light and an invisible light, is taught by Lee (col. 4, line 67). A fluorescent lamp with enhanced light emitting efficiency is taught by Taguchi. The fluorescent lamp has a sealed container (tube 1), a pair of internal electrodes (2a, 2b) and a pair of external electrodes (5a, 5b) disposed outside the sealed container (tube 1). See Figs. 1 and 3. The figures show two different voltages, one applied between the pair of external electrodes (5a, 5b) producing a discharge between the electrodes (5a, 5b), another one applied between internal electrodes (2a, 2b) producing a discharge between the electrodes (2a, 2b) different from the discharge between the electrodes (5a, 5b).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hiramatsu et al. and Lee with the

teaching of the fluorescent lamp of Taguchi, in order to enhance the light emitting efficiency as suggested by Taguchi.

7. Claims 4, 9, 14, and 16-18 are allowed.
8. Claims 8, 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is an examiner's statement of reasons for allowance:

Claim 4 is allowed because Hiramatsu et al. does not disclose switching the emission mode by changing an internal discharge state of the lamp (1) as claimed but by selectively inserting an IR filter in the optical path.

Claims 8 and 9 would be/is allowable because, although the closest prior art Taguchi teaches producing different discharges at electrode pairs by adjusting the voltage or current to the electrode pairs, nowhere in Taguchi suggests that the different discharges produced correspond to two different emission modes (first and second modes claimed), one of which uses IR, and the other of which uses visible light.

Claim 11 would be allowable because none of the prior art of record teaches calculating a first read result and a second read result and generating a first corrected read result and a second corrected read result relating to the visible light and the invisible light, respectively.

Claim 12 would be allowable because none of the prior art of record teaches a reading unit carriage that moves in two opposite direction in reading in the first mode that uses visible light and in reading in the second that uses invisible light, respectively.

Claim 14 is allowable over the prior art of record because the prior art, including Taguchi (Japanese), does not teach supplying the lamp with power so as to generate two discharges synchronously with each other, one discharge being between the external electrodes of the lamp, and the other being between the internal electrodes.

Claims 18, 16 and 17 are allowable over the prior art of record. Though the closest prior art Taguchi discloses generating different discharges from different pairs of electrodes, i.e., the external pair and the internal pair, Taguchi does not teach generating more infrared (IR) light more in a discharge between one of these pairs of electrodes than a discharge between the other pair of electrodes as claimed in claim 18. Claims 16 and 17 depend upon claim 18.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheukfan Lee whose telephone number is (703) 305-4867. The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (703) 305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cheukfan Lee
July 21, 2004


Cheukfan Lee